eMINTS NATIONAL CENTER

Assistive Technology and the Special Education Student

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University of Missouri Office of Academic Affairs

Introductions

- Monica Beglau, Director, eMINTS National Center, UM
- Jennifer Kuehnle, eMINTS Special Programs Coordinator
- Mic check and go-round: please introduce yourself and tell where you are from

eMINTS and Special Ed

- eMINTS has always had an interest in special education
- Anecdotal reports and quantitative assessment analyses show that eMINTS classrooms "level the playing field" for students on IEPs
- Several eMINTS staff members have special education backgrounds

How We Got Here

- Spring 2006: Division of Special Education – Effective Practices proposed a pilot project using speech-to-text and voice-recognition software at elementary level in eMINTS classrooms
  - eMINTS provided professional development and project management
  - 3 St. Louis area school districts involved
    - 11 teachers participated (grades 3,4, and 5)
- Fall 2007: Pilot expanded to non-eMINTS classrooms
  - eMINTS provided professional development and project management
  - Same 3 St. Louis area school districts involved
    - 7 teachers participated (grades 4 and 5)
- Both groups included special educators and one included a reading specialist

Initial Pilot

- eMINTS teachers, principals and tech coordinators from 3 schools met to review available software and selected Read and Write Gold™
- eMINTS developed professional development materials to teach classroom uses
  - Classroom visits provided to assist teachers
- Read and Write Gold™ tutorials were used to teach software

Extension of Pilot

- Same software was used in extension
- Teachers in non-eMINTS classrooms shared a laptop cart
- eMINTS teachers and staff provided professional development and support
  - Student "experts" from eMINTS classrooms also assisted

Text to Speech Software

- Gives children with print disabilities a chance to interact with text through aural means bypassing the challenged area
- Allows children exposure to content information on the web and in print at their intellectual level rather than their visual processing level.

Classroom Set Up

- Install software on all classroom or lab computers so children with an IEP are not singled out.
- Provide training for all students in the classroom so they can all choose to use it as a tool in their writing and reading .
- Allow student to use headphones so they can select tools without disturbing other students.

Reading Tools

- Most programs allow both reading of text from the web and from scanned worksheets and books.
- Many other tools are included:
  - Spoken Dictionaries
  - Homophone Assistance
  - Ability to create MP3 files of the spoken text to save and play later.
  - Text is highlighted as it is read to build visual accuracy

Writing Tools

- Children benefit tremendously from hearing their own words read back to them to allow better editing.
  - ❖Word Prediction
  - ❖Phonetic Spell Check
  - ❖Homophone Helpers
  - ❖Study Aids/Graphic Organizer
  - ❖Note Taking Tools

Calculators

- Can show equations vertically or horizontally
- Numbers and mathematical symbols are spoken aloud.
- Equations can be cut and pasted into work documents

Classroom Challenges

- Speech to text options were an exciting idea to both teachers and students
- The voice training required to use the program was very difficult for young students
- Children with heavy accents or speech issues had very little success with voice recognition

Classroom Success

- Children in ELL programs found significant motivation when hearing their words spoken in English.
- All children were able to improve their editing skills as they listened to their writing and made independent corrections that didn't rely as heavily on individual instructor time.

Classroom Successes

- Students who were highly distractible focused better when wearing headphones
- Recording sound files of textbook selections or word lists allowed students to study and review content.
- Students became adept at selecting what tools they needed to use to compensate for their challenges.

Classroom Use Tips

- Save files to a server so children can access files from anywhere in the school
- Allow students to compose stories and type them into the program without writing on paper first.
- Early in program use provide a keyboarding program so students become familiar with the computer

Project Evaluation

- Analysis of teacher logs and reflections
  - Showed that eMINTS teachers learned to use software more easily than non-eMINTS teachers
  - All teachers reported using software in different subject areas but used it more in language arts
- Teacher focus groups
  - All teachers reported significant changes in student behavior as a results of software use
  - Students with print disabilities benefitted most; however, ELL students also gained

- Analysis of MAP results
  - Positive trends seen in all project classrooms when compared to non-project classrooms in schools of similar demographics
  - MAP Communication Arts scores higher in all project rooms (did not reach statistical significance)
  - Extension project will analyze building-specific reading scores

Paper on Project and Extension

- A formal paper on the project and the extension will be presented at the National Educational Computing Conference on July2, 2008
- The paper will then be available on Special Education website with webinar and professional development materials

Questions or Comments?

- Please let us know of any questions or comments you may have

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